

State of Hawai‘i  
DEPARTMENT OF LAND AND NATURAL RESOURCES  
Division of Aquatic Resources  
Honolulu, Hawai‘i 96813

June 12, 2015

Board of Land and Natural Resources  
Honolulu, Hawai‘i

Request for Authorization and Approval to Issue a Papahānaumokuākea Marine National Monument Native Hawaiian Practices Permit to Mr. Nainoa Thompson, Polynesian Voyaging Society, for Access to State Waters to Conduct Training Sails for Apprentice Navigators Using Non-Instrumental Navigation Activities

The Division of Aquatic Resources (DAR) hereby submits a request for your authorization and approval for issuance of a Papahānaumokuākea Marine National Monument Native Hawaiian practices permit to Mr. Nainoa Thompson, President, Polynesian Voyaging Society, pursuant to § 187A-6, Hawai‘i Revised Statutes (HRS), Chapter 13-60.5, Hawai‘i Administrative Rules (HAR), and all other applicable laws and regulations.

The Native Hawaiian practices permit, as described below, would allow entry and activities to occur in Papahānaumokuākea Marine National Monument, including the NWHI State Marine Refuge and the waters (0-3 nautical miles) surrounding the following sites:

- Nīhoa Island
- Mokumanamana (Necker)
- French Frigate Shoals

The activities covered under this permit would occur between July 1, 2015 and June 30, 2016.

INTENDED ACTIVITIES

The Applicant proposes to conduct training sails for apprentice navigators by sailing to Nīhoa Island from the Main Hawaiian Islands using non-instrumental navigation. This activity would strengthen cultural connections to the Northwestern Hawaiian Islands and perpetuate the traditional Native Hawaiian skill of wayfinding. The training sails would be aboard the HIKIANALIA, a 72-foot Native Hawaiian voyaging canoe. HIKIANALIA would be anchored on sandy substrate offshore during the day and utilize one small inflatable tender (oar powered) to shuttle personnel to the shoreline.

As part of the larger, worldwide Mālama Honua (Care for the Earth) voyage, HIKIANALIA will be returning home to Hawai‘i to keep alive the message of navigating towards a healthy and sustainable future. It had previously been accompanying the HŌKŪLE‘A on its worldwide tour. This voyage would be in coordination and collaboration with marine research being conducted on board the SEARCHER. The purpose of this multidisciplinary expedition is to leverage expertise

and resources from scientists, marine managers, educators, and cultural practitioners to further integrate western science and Native Hawaiian ways of knowing to (1) share knowledge, (2) broaden the ways in which the expedition team assesses their surrounding environment; (3) utilize knowledge and skills gained on the expedition; and (4) empower the team to educate their communities about approaching science and conservation in a more holistic manner.

The Applicant proposes that up to sixteen (16) crew members would enter the Monument. Previously, HIKIANALIA entered the Monument in 2013, and her sister voyaging canoe, HŌKŪLE'A, sailed to the Northwestern Hawaiian Islands in 2004.

Five main projects will be conducted during the collaborative expedition:

- (1) Maritime Education: Voyaging and traditional navigation training
- (2) Science activities onboard HIKIANALIA (marine acoustics, fish samples, plankton sampling, marine debris, water quality);
- (3) Rocky shoreline (intertidal) monitoring;
- (4) Nearshore reef fish surveys, including gonad studies (see attachments F3a and F3b);
- (5) Ciguatera testing on select reef fishes to ensure future subsistence gathering

In addition, subsistence gathering for algae, limited reef fishes, and invertebrates, and access to intertidal and land areas will be done for Native Hawaiian protocol purposes. These activities will complement the research of the expedition team that will be collecting a comparable amount of samples for the purposes of scientific investigation. Fishing activities in federal and state waters will be done by trolling a lure on a single monofilament handline for 100 feet. The line would be monitored at all times and personnel would abide by Monument Best Management Practices: Seabird Protocols Necessary for Conducting Trolling Research and Monitoring to reduce impacts to seabirds. All fishing gear would be removed from the water if any Hawaiian monk seals or sea turtles are observed. All fish caught would be consumed within the Monument.

Lastly, the Applicant intends to partake in cultural observations and protocol including the offering of ho'okupu (gifts of water, oli (chants), and pule (prayer)) in order to strengthen cultural connections to the place.

The activities proposed by the Applicant directly support the Monument Management Plan's (MMP) priority management needs through 3.1.2 – Native Hawaiian Culture and History Action Plan (Strategy NHCH-2: Conduct, support, and facilitate Native Hawaiian cultural access and research of the NWHI over the life of the plan). NHCH-2.6 states “[s]uch access needs may include, but not be limited to...regular access for Polynesian voyaging canoes for wayfinding, navigational, and cultural protocol training”. The knowledge and experiences gained by perpetuating these practices is invaluable to the Hawaiian community and to the individuals who partake in them. The expedition would build upon previous research on the significance of traditional wayfinding which will also help cultural practitioners better understand the celestial, spiritual and cultural connections between Papahānaumokuākea and the Main Hawaiian islands.

The activities described above may require the following regulated activities to occur in State waters:

- ☒ Removing, moving, taking, harvesting, possessing, injuring, disturbing, or damaging any living or nonliving monument resource

- ☒ Anchoring a vessel
- ☒ Possessing fishing gear except when stowed and not available for immediate use during passage without interruption through the Monument
- ☒ Sustenance fishing (Federal waters only, outside of Special Preservation Areas, Ecological Reserves and Special Management Areas)
- ☒ Subsistence fishing (State waters only)
- ☒ Swimming, snorkeling, or closed or open circuit SCUBA diving within any Special Preservation Area or Midway Atoll Special Management Area

#### REVIEW PROCESS:

The permit application was sent out for review and comment to the following scientific and cultural entities: Hawai'i Division of Aquatic Resources, Hawai'i Division of Forestry and Wildlife, Papahānaumokuākea Marine National Monument (NOAA/NOS), NOAA Pacific Islands Regional Office (NOAA-PIRO), United States Fish and Wildlife Service Hawaiian and Pacific Islands National Wildlife Refuge Complex Office, and the Office of Hawaiian Affairs (OHA). In addition, the permit application has been posted on the Monument Web since April 15, 2015, giving the public an opportunity to comment. The application was posted within 40 days of its receipt, in accordance with the Monument's Public Notification Policy.

**Comments received from the scientific community are summarized as follows:**

#### QUESTIONS:

1. Page 15, second paragraph says "Once the species of fish is determined for each of the five identified groups of fish, no more than 20 species of fish will be collected per fish group identified (Kole, Uhu, U'u and Nenu) with the exception of Manini, of which 50 fish will be collected." Please clarify total collections.

*Yes, correct. Collections are requested as follows:*

*Kole – 20*

*Uhu – 20*

*U'u – 20*

*Nenu – 20*

*Manini – 50*

***Total – 130***

2. Please explain the anticipated cumulative impacts of having 3 groups (Springer, Toonen-Bird, & Thompson) at one site collecting intertidal zone species at Nihoa.

*No more than 10 people would participate in intertidal monitoring activities on any one island, at any given time. This is the same footprint as has occurred in previous years (since 2009) and no known or identifiable negative impacts to the environment have occurred since this project's inception. Activities aboard the Hikianalia will not change the footprint in the intertidal zone. Collections of invertebrates and other specimens found in the intertidal zone*

*will be limited to what has been requested via permit applications from Dr. Chris Bird and Ms. Kehau Springer.*

3. What fixative will be used to preserve organisms?

*No solutions will be used during this trip because freezer space will be available; therefore, all specimens will be frozen and stored in a freezer onboard the MV Searcher.*

#### COMMENTS / RECOMMENDATIONS:

1. They will collect up to 130 fish from 5 species. They will preserve samples for gonad, genetic, stomach and Ciguatera analysis. The collections of 130 fish is spanned over 3 days, and realistically may not reach that limit within the 3 days.

*Noted.*

2. The group sizes are pretty large. Please take great care not to damage the reef during water and intertidal activities. Take extreme care with vessels and equipment to prevent being a vector for invasive species.

*Noted.*

3. Please follow all PMNM BMPs to ensure that no chemicals enter the water in the NWHI.

*Noted; however, no chemicals will be onboard.*

#### **Comments received from the Native Hawaiian community are summarized as follows:**

Cultural reviews support the acceptance of this application.

#### **Comments received from the public are summarized as follows:**

No comments were received from the public on this application.

#### **Additional reviews and permit history:**

Are there other relevant/necessary permits or environmental reviews that have or will be issued with regard to this project? (e.g. MMPA, ESA, EA)      Yes ☒      No ☐

If so, please list or explain:

- ☐ A consultation pursuant to section 106 of the National Historic Preservation Act (NHPA) is underway to ensure that no adverse impacts to cultural sites on Niihau Island are anticipated from the conduct of proposed activities. The outcome of this consultation may require the applicant to adhere to other Native Hawaiian cultural recommendations and/or State Historic Preservation Division-prescribed conditions. Such conditions will be

reflected in the Monument permit if endorsed by the Monument Management Board prior to issuance.

- Coordination and consultation pursuant to ESA Section 7 will occur prior to issuance of this permit. Consultations was initiated to analyze the effects of conducting cultural observations and protocol and fishing activities at Nīhoa Island on Hawaiian Monk Seals, Hawksbill Sea Turtles, Green Sea Turtles, and monk seal designated critical habitat. The outcome of this consultation may require the applicant to adhere to other NMFS-prescribed conditions.
- The Department has made an exemption determination for this permit in accordance chapter 343, HRS, and Chapter 11-200, HAR. See Attachment ("DECLARATION OF EXEMPTION FROM THE PREPARATION OF AN ENVIRONMENTAL ASSESSMENT UNDER THE AUTHORITY OF CHAPTER 343, HRS AND CHAPTER 11-200 HAR, FOR PAPAHĀNAUMOKUĀKEA MARINE NATIONAL MONUMENT RESEARCH PERMIT TO MR. NAINOA THOMPSON, POLYNESIAN VOYAGING SOCIETY, FOR ACCESS TO STATE WATERS TO CONDUCT TRAINING SAILS FOR APPRENTICE NAVIGATORS USING NON-INSTRUMENTAL NAVIGATION ACTIVITIES UNDER PERMIT PMNM-2015-021")

Has Applicant been granted a permit from the State in the past? Yes ☐ No ☒

If so, please summarize past permits:

Have there been any a) violations: Yes ☐ No ☒  
b) Late/incomplete post-activity reports: Yes ☐ No ☒

Are there any other relevant concerns from previous permits? Yes ☐ No ☒

#### STAFF OPINION:

PMNM staff is of the opinion that Applicant has properly demonstrated valid justifications for his application and should be allowed to enter the NWHI State waters and to conduct the activities therein as specified in the application with certain special instructions and conditions, which are in addition to the Papahānaumokuākea Marine National Monument Native Hawaiian Practices Permit General Conditions. All suggested special conditions have been vetted through the legal counsel of the Co-Trustee agencies (see Recommendation section).

#### MONUMENT MANAGEMENT BOARD OPINION:

The MMB is of the opinion that the Applicant has met the findings of Presidential Proclamation 8031 and this activity may be conducted subject to completion of all compliance requirements. The MMB concurs with the special conditions recommended by PMNM staff.

RECOMMENDATION:

Based on the attached proposed declaration of exemption prepared by the department after consultation with and advice of those having jurisdiction and expertise for the proposed permit actions:

1. That the Board declare that the actions which are anticipated to be undertaken under this permit will have little or no significant effect on the environment and is therefore exempt from the preparation of an environmental assessment.
2. Upon the finding and adoption of the department's analysis by the Board, that the Board delegate and authorize the Chairperson to sign the declaration of exemption for purposes of recordkeeping requirements of chapter 343, HRS, and chapter 11-200, HAR.
3. That the Board authorize and approve a Native Hawaiian Practices Permit to Mr. Nainoa Thompson, Polynesian Voyaging Society, with the following special conditions:
  - a. To prevent introduction of disease or the unintended transport of live organisms, the permittee must comply with the disease and transport protocol attached to this permit.
  - b. Tenders and small vessels must be equipped with engines that meet EPA emissions requirements.
  - c. Refueling of tenders and all small vessels must be done at the support ships and outside the confines of lagoons or near-shore waters in the State Marine Refuge.
  - d. No fishing is allowed in State Waters except as authorized under state law for subsistence, traditional, and customary practices by Native Hawaiians.
  - e. If there is any Hawaiian monk seal or any other protected species in the area when performing any permitted activity shall cease until the animal(s) depart the area, except as permitted for specific management of that species.
  - f. For all activities requiring landing on uninhabited islands an authorized staff escort trained for each particular inhabited island will be included on the landing team.

Respectfully submitted,

  
Maria Carnevale  
State Co-Manager  
Papahānaumokuākea Marine National Monument

APPROVED FOR SUBMITTAL

  
Suzanne Case  
Chairperson

**Papahānaumokuākea Marine National Monument**  
**NATIVE HAWAIIAN PRACTICES Permit Application**

***NOTE: This Permit Application (and associated Instructions) are to propose activities to be conducted in the Papahānaumokuākea Marine National Monument. The Co-Trustees are required to determine that issuing the requested permit is compatible with the findings of Presidential Proclamation 8031. Within this Application, provide all information that you believe will assist the Co-Trustees in determining how your proposed activities are compatible with the conservation and management of the natural, historic, and cultural resources of the Papahānaumokuākea Marine National Monument (Monument).***

**ADDITIONAL IMPORTANT INFORMATION:**

- Any or all of the information within this application may be posted to the Monument website informing the public on projects proposed to occur in the Monument.
- In addition to the permit application, the Applicant must either download the Monument Compliance Information Sheet from the Monument website OR request a hard copy from the Monument Permit Coordinator (contact information below). The Monument Compliance Information Sheet must be submitted to the Monument Permit Coordinator after initial application consultation.
- Issuance of a Monument permit is dependent upon the completion and review of the application and Compliance Information Sheet.

**INCOMPLETE APPLICATIONS WILL NOT BE CONSIDERED**

Send Permit Applications to:  
NOAA/Inouye Regional Center  
NOS/ONMS/PMNM/Attn: Permit Coordinator  
1845 Wasp Blvd, Building 176  
Honolulu, HI 96818  
nwhiperm@noaa.gov  
PHONE: (808) 725-5800 FAX: (808) 455-3093

**SUBMITTAL VIA ELECTRONIC MAIL IS PREFERRED BUT NOT REQUIRED. FOR ADDITIONAL SUBMITTAL INSTRUCTIONS, SEE THE LAST PAGE.**

## **Papahānaumokuākea Marine National Monument Permit Application Cover Sheet**

This Permit Application Cover Sheet is intended to provide summary information and status to the public on permit applications for activities proposed to be conducted in the Papahānaumokuākea Marine National Monument. While a permit application has been received, it has not been fully reviewed nor approved by the Monument Management Board to date. The Monument permit process also ensures that all environmental reviews are conducted prior to the issuance of a Monument permit.

### **Summary Information**

**Applicant Name:** Charles Nainoa Thompson

**Affiliation:** Polynesian Voyaging Society

**Permit Category:** Native Hawaiian Practices

**Proposed Activity Dates:** July 1, 2015 - June 30, 2016

**Proposed Method of Entry (Vessel/Plane):** Vessel

**Proposed Locations:** Nihoa, Mokumanamana, French Frigate Shoals

**Estimated number of individuals (including Applicant) to be covered under this permit:**  
16

**Estimated number of days in the Monument:** 10 days maximum (including weather buffer days) in 2015

**Description of proposed activities:** (complete these sentences):

a.) The proposed activity would...  
serve multiple purposes. Hikianalia, one of our two Polynesian voyaging canoes, began the Mālama Honua (Care for the Earth) Worldwide Voyage with Hōkūle'a on May 29, 2013 with the start of a sail around the Hawaiian Archipelago. We began the voyage in Hawai'i, including Papahānaumokuākea, to show our commitment and dedication to our home and allow for the people of Hawai'i to connect with the mission of the voyage, which is to navigate toward a healthy and sustainable future, recognizing the importance of culture to our well-being now and in the future. Hikianalia and Hōkūle'a then departed Hawai'i on May 30, 2014, and sailed together throughout the Pacific. Hōkūle'a will continue to voyage around the world in 2015, but Hikianalia will come home to Hawai'i in June of 2015 to assure that the Mālama Honua voyage stays alive and well in Hawai'i and among Hawai'i's children and people, who will best benefit from Hikianalia as a learning platform for environmental and cultural sustainability of our home.

b.) To accomplish this activity we would ....



sail into Papahānaumokuākea on the double-hulled voyaging canoe Hikianalia, using her as a platform to continue to train and test apprentice navigators to practice the traditional Hawaiian/Polynesian skills of wayfinding (non-instrumental navigation), while conducting the same science projects from her decks that we did while sailing her with Hōkūle'a from Hawai'i to and through French Polynesia, the Cook Islands, American Sāmoa, Sāmoa, the Kingdom of Tonga and Aotearoa (New Zealand), including examining genetics, stomachs and size of fish caught by handline (which will also be eaten for sustenance); studying water quality, temperature and acidity; recording marine debris and plankton caught in nets; and noting related natural observations.

This voyage would be in coordination and collaboration with marine research being conducted on board the Searcher. Bringing together researchers, Native Hawaiian practitioners, educators, and Hawai'i's conservation leaders, this mission aims to conduct a suite of activities within Papahānaumokuākea using the modern-day vessel Searcher and traditional voyaging canoe Hikianalia as complementary platforms.

The purpose of this multidisciplinary expedition is to leverage expertise and resources from scientists, marine managers, educators, and cultural practitioners to further integrate western science and Native Hawaiian ways of knowing to (1) share knowledge, (2) broaden the ways in which the expedition team assesses their surrounding environment; and (3) utilize knowledge and skills gained on the expedition; and (4) empower the team to educate their communities about approaching science and conservation in a more holistic manner.

c.) This activity would help the Monument by ...  
meeting a priority within the Monument Management Plan, which includes an activity in support of regular access for Polynesian voyaging canoes for wayfinding, navigational and cultural protocol training. We also note that wayfinding training and traditional voyaging were components of Papahānaumokuākea's successful nomination as a natural and cultural World Heritage site. Having this living tradition continue should be a priority for managers of this Marine World Heritage site. We are also combining it with simultaneous, collaborative research being conducted from the Searcher. Our mutual activity "Collaboration of Science and Culture: A multidisciplinary expedition to the Northwestern Hawaiian Islands" is grounded in the vision, mission and goals of the 2008 PMNM Management Plan, and the vision and mission of the Polynesian Voyaging Society.

Furthermore, besides perpetuating integral components of Native Hawaiian culture (voyaging and wayfinding), the use of traditional canoes in the Monument offers an opportunity to maintain a level of cultural integrity that is appropriate for spiritual ceremonies in Papahānaumokuākea. The ability of crewmembers to perform cultural/spiritual protocol and honor their ancestors perpetuates a centuries-old link of

Native Hawaiians to their ancestors, their ancestral knowledge and their Kūpuna Islands.

**Other information or background:**

Hikianalia successfully and safely voyaged into Papahānaumokuākea in September 2013, with 6 apprentice navigators and 4 pwo (master) traditional navigators on board, providing an exceptional experiential learning opportunity. That voyage helped to provide a stronger awareness that the entire Hawaiian Archipelago is connected, sacred and worth protecting. It also helped to continue to draft the chart toward more regular access for Polynesian voyaging canoes into this traditional voyaging area and toward more collaboration among multidisciplinary champions of the perpetuation of the natural and cultural resources of Hawai'i. For this reason, PVS is excited to leverage expertise and resources from scientists, marine managers, educators, and cultural practitioners to further integrate western science and Native Hawaiian ways of knowing.

## **Section A - Applicant Information**

### **1. Applicant**

Name (last, first, middle initial): Thompson, Charles N.

Title: President

**1a. Intended field Principal Investigator (See instructions for more information):**  
Nainoa Thompson

**2. Mailing address (street/P.O. box, city, state, country, zip):**

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

For students, major professor's name, telephone and email address: N/A

**3. Affiliation (institution/agency/organization directly related to the proposed project):**  
Polynesian Voyaging Society

**4. Additional persons to be covered by permit. List all personnel roles and names (if known at time of application) here (e.g. John Doe, Diver):**  
16 crew (maximum) for the double-hulled, Polynesian voyaging canoe Hikianalia, -- crew member names TBD on compliance information sheet.

## **Section B: Project Information**

### **5a. Project location(s):**

<input checked="" type="checkbox"/> Nihoa Island	<input type="checkbox"/> Land-based	<input checked="" type="checkbox"/> Shallow water	<input checked="" type="checkbox"/> Deep water
<input checked="" type="checkbox"/> Necker Island (Mokumanamana)	<input type="checkbox"/> Land-based	<input checked="" type="checkbox"/> Shallow water	<input checked="" type="checkbox"/> Deep water
<input checked="" type="checkbox"/> French Frigate Shoals	<input type="checkbox"/> Land-based	<input checked="" type="checkbox"/> Shallow water	<input checked="" type="checkbox"/> Deep water
<input type="checkbox"/> Gardner Pinnacles	<input type="checkbox"/> Land-based	<input type="checkbox"/> Shallow water	<input type="checkbox"/> Deep water
<input type="checkbox"/> Maro Reef			
<input type="checkbox"/> Laysan Island	<input type="checkbox"/> Land-based	<input type="checkbox"/> Shallow water	<input type="checkbox"/> Deep water
<input type="checkbox"/> Lisianski Island, Neva Shoal	<input type="checkbox"/> Land-based	<input type="checkbox"/> Shallow water	<input type="checkbox"/> Deep water
<input type="checkbox"/> Pearl and Hermes Atoll	<input type="checkbox"/> Land-based	<input type="checkbox"/> Shallow water	<input type="checkbox"/> Deep water
<input type="checkbox"/> Midway Atoll	<input type="checkbox"/> Land-based	<input type="checkbox"/> Shallow water	<input type="checkbox"/> Deep water
<input type="checkbox"/> Kure Atoll	<input type="checkbox"/> Land-based	<input type="checkbox"/> Shallow water	<input type="checkbox"/> Deep water
<input type="checkbox"/> Other			

☐ Remaining ashore on any island or atoll (with the exception of Midway & Kure Atolls and Field Camp staff on other islands/atolls) between sunset and sunrise.

NOTE: There is a fee schedule for people visiting Midway Atoll National Wildlife Refuge via vessel and aircraft.

### **Location Description:**

The intention in 2015 is to navigate, using traditional methods, to Nihoa, sail around the island, close sails, anchor, and transport people to the nearshore to assist in the multidisciplinary studies being conducted from the decks of the Searcher as well as to continue to train our crew members in voyaging and navigation skills, and within the voyaging values of taking care of our collective home for our present and future children. We will finalize our sail plans before our departure to make sure that all Monument consultations and requirements are met.

### **5b. Check all applicable regulated activities proposed to be conducted in the Monument:**

- ☒ Removing, moving, taking, harvesting, possessing, injuring, disturbing, or damaging any living or nonliving Monument resource
- ☐ Drilling into, dredging, or otherwise altering the submerged lands other than by anchoring a vessel; or constructing, placing, or abandoning any structure, material, or other matter on the submerged lands
- ☒ Anchoring a vessel
- ☐ Deserting a vessel aground, at anchor, or adrift
- ☒ Discharging or depositing any material or matter into the Monument
- ☐ Touching coral, living or dead
- ☒ Possessing fishing gear except when stowed and not available for immediate use during passage without interruption through the Monument
- ☐ Attracting any living Monument resource

- ☒ Sustenance fishing (Federal waters only, outside of Special Preservation Areas, Ecological Reserves and Special Management Areas)
- ☒ Subsistence fishing (State waters only)
- ☒ Swimming, snorkeling, or closed or open circuit SCUBA diving within any Special Preservation Area or Midway Atoll Special Management Area

**6. Purpose/Need/Scope *State purpose of proposed activities:***

Hikianalia, a Polynesian voyaging canoe, began the Mālama Honua (Care for the Earth) Worldwide Voyage on May 29, 2013, by beginning a sail around the Hawaiian Archipelago with her sister wa'a: Hōkūle'a. As part of this voyage, Hikianalia first visited Papahānaumokuākea via Nihoa in September 2013. Starting the voyage in Hawai'i showed our commitment and dedication to Hawai'i and allowed for her people to connect with the vision and mission of the voyage which is to navigate toward a healthy and sustainable future, recognizing the importance of culture to our well-being now and in the future. Now, we are bringing Hikianalia home to continue that commitment to Hawai'i, while Hōkūle'a continues to voyage west, around our planet.

We are requesting permission to 'ikemaka iā Nihoa in 2015 -- to voyage to this sacred place to honor the land and waters directly, eat from the waters that surround them, honor our ancestors that reside there, and place ourselves in the living genealogy of Hawai'i that includes Papahānaumokuākea. We hope to be reinvigorated physically and spiritually, to reconnect to our kūpuna through a piko of the Hawaiian world (Papahānaumokuākea), and to reaffirm our capability and need to journey around the world carrying the message of Mālama Honua.

While traveling around the world, the canoes plan to visit 23 Marine Protected Areas (including Papahānaumokuākea) to highlight their importance and significance as safeholds for the future, so we would like to continue to honor and highlight Hawai'i's Papahānaumokuākea. Coupled with this important reasons stated above, the location of Nihoa provides excellent training to apprentice navigators to practice the traditional Hawaiian/Polynesian skills of wayfinding (non-instrumental navigation). The main Hawaiian Islands are relatively too close to each other and have too many artificial lights at night for this type of long-range navigational experience.

These isles have no artificial lighting to aid the apprentice navigator, and their small physical size and low-lying nature require astute observations of the sun, stars, swells, seabirds and other natural phenomena. The route from Kaua'i to Nihoa is the only one from the main Hawaiian Islands to another island in the archipelago where neither the launching point nor the target destination is visible for an extended period of time during the course of the voyage, thereby offering a close simulation of a long-distance voyage without the added dangers of testing endurance. It is also the only voyaging route that offers this simulation while being close enough to the main Hawaiian Islands to ensure safety and access to provisions. These characteristics make this route the ideal training platform for novice Hawaiian wayfinders.

Today, apprentice Hawaiian wayfinders can be considered qualified to attempt to navigate a canoe on long-distance, trans-Pacific sails after they have successfully guided a voyage from Kaua'i to Nihoa.

Papahānaumokuākea has also been named a World Heritage site for its natural and cultural significance. Our proposed activities will highlight and exemplify Papahānaumokuākea as an important place for the perpetuation of Native Hawaiian cultural practices and a place that is essential in training apprentice navigators studying modern Hawaiian wayfinding aboard traditional double-hulled Hawaiian voyaging canoes.

In addition to traditional wayfinding, crew will participate in intertidal monitoring surveys, fish surveys, and collection of fish for testing presence of ciguatera as well as analyzing the stomach contents, and collecting and analyzing gonads and fin clips for genetics and reproductive analyses. (Please see attached appendices describing these activities, which are being collaborated upon with PIs and researchers connected with the Searcher.)

Five main projects will be conducted during the collaborative expedition:

- (1) Maritime Education: Voyaging and traditional navigation training
- (2) Science activities onboard Hikianalia (marine acoustics, fish samples, plankton sampling, marine debris, water quality);
- (3) Rocky shoreline (Intertidal) monitoring;
- (4) Nearshore reef fish surveys, including gonad studies; and
- (5) Ciguatera testing on select reef fishes to ensure future subsistence gathering

In addition, subsistence gathering for algae, limited reef fishes, and invertebrates, and access to intertidal and land areas will be done for Native Hawaiian protocol purposes. These activities will complement the researchers of the expedition team who will be collecting a comparable amount of samples for the purposes of scientific investigation.

\*Considering the purpose of the proposed activities, do you intend to film / photograph federally protected species? Yes ☐ No ☒

For a list of terrestrial species protected under the Endangered Species Act visit:  
<http://www.fws.gov/angered/>

For a list of marine species protected under the Endangered Species Act visit:  
<http://www.nmfs.noaa.gov/pr/species/esa/>

For information about species protected under the Marine Mammal Protection Act visit:  
<http://www.nmfs.noaa.gov/pr/laws/mmpa/>

**7. Answer the Findings below by providing information that you believe will assist the Co-Trustees in determining how your proposed activities are compatible with the conservation and management of the natural, historic, and cultural resources of the Monument:**

The Findings are as follows:

a. How can the activity be conducted with adequate safeguards for the cultural, natural and historic resources and ecological integrity of the Monument?

The double-hulled voyaging canoe Hikianalia will train its apprentice, non-instrument navigators by voyaging to Nihoa in 2015. We plan to circumnavigate the island and participate in intertidal surveys in partnership with Dr. Chris Bird and Kehaunani Springer's intertidal monitoring project that has been ongoing in the Monument since 2009. The Hikianalia crew (a maximum of 16 people total) will be in Papahānaumokuākea for a maximum of 10 days at a time (we request buffer days for weather and safety purposes) and will not disturb any natural, cultural or historic resources. We seek to honor our ancestors and the high significance of these places by presenting ho'okupu in the form of oli (chants), pule (prayers), and spiritual gifts from the main Hawaiian Islands (such as awa and rain water and possibly a red fish offered as ho'okupu).

We may have a videographer and/or photographer on board as a crew member, but those videos and stills would only be used for educational and management purposes for and about the cultural, natural and historic resources of Papahānaumokuākea.

b. How will the activity be conducted in a manner compatible with the management direction of this proclamation, considering the extent to which the conduct of the activity may diminish or enhance Monument cultural, natural and historic resources, qualities, and ecological integrity, any indirect, secondary, or cumulative effects of the activity, and the duration of such effects?

The Monument Proclamation highlights the cultural significance of Papahānaumokuākea to Native Hawaiians, and the Proclamation itself authorizes access to the area via Native Hawaiian Practices Permits. The proposed activities are compatible with the management direction of the Proclamation and the Monument Management Plan, which has prioritized the support of regular access for Polynesian voyaging canoes for wayfinding, navigational, and cultural protocol training.

As previously stated, the activities proposed herein will not impact the environment or historic resources in any negative way. All activities will be conducted in accordance with the Monument's BMPs. For safety purposes, Hikianalia will carry communications and first-aid equipment on board. This vessel will meet the strict requirements of this permitting process.

The proposed project's activities will enhance the public's and Papahānaumokuākea management's understanding of the living cultural significance of this place, its connection to Hawai'i's past and to the main Hawaiian Islands of today, and the abilities



of our younger generation of traditional navigators. Also, as part of Hōkūle'a and Hikiana's continuing Mālama Honua voyage, this leg to and from Papahānaumokuākea will enjoy positive publicity. PVS will be producing educational tools and information, connecting to communities across the archipelago also working to restore coastal habitats and cultural knowledge, and trying to reach K-12 and university students through partnership with public, private and charter schools across Hawai'i, as well as the University of Hawai'i system and the myriad of schools outside of Hawai'i that have registered their interest and support via our website: [www.hokulea.com](http://www.hokulea.com).

Also, PVS's mission directly relates to and is compatible with the management direction of the Monument: "With a legacy of ocean exploration as its foundation, the Polynesian Voyaging Society reaffirms our commitment to undertake voyages of discovery; respect and learn from our heritage and culture; and strengthen learning which integrates voyaging experiences into quality education. We are committed to nurturing communities and the leadership therein which values learning and sharing knowledge in order to foster living well on islands."

c. Is there a practicable alternative to conducting the activity within the Monument? If not, explain why your activities must be conducted in the Monument.

There is no practicable alternative to conducting the proposed activities within Papahānaumokuākea, specifically at Nihoa and Mokumanamana. As traditional teachings show us, in order to truly experience and connect with a place, we must 'ikemaka (see, experience, visit firsthand) the place. As for navigation, Nihoa has no artificial lighting to aid the apprentice navigator, and its small physical size and low-lying nature requires astute observations of the sun, stars, swells, seabirds and other natural elements. Today, apprentice Hawaiian wayfinders can be considered qualified to attempt to navigate a canoe on long-distance, trans-oceanic sails after they have successfully guided a voyage from Kaua'i to Nihoa.

d. How does the end value of the activity outweigh its adverse impacts on Monument cultural, natural and historic resources, qualities, and ecological integrity?

While we do not think that there are any adverse impacts, the proposed activities provide beneficial impacts to Papahānaumokuākea, such as those explained above, and by highlighting (through example) the area as an important place for the perpetuation of Native Hawaiian cultural and spiritual practices and a place that is essential in training apprentice navigators studying modern Hawaiian wayfinding aboard traditional double-hulled Hawaiian voyaging canoes.

Also, we are excited about the opportunity to participate in a shared expedition with permittees on the Searcher, which we anticipate will result in integrated perspectives and mutual respect of various means of environmental exploration and knowledge through the intermingling of multiple disciplines and expertise of expedition members.

e. Explain how the duration of the activity is no longer than necessary to achieve its stated purpose.

The proposed activities would take place in the Monument for only the possible 10 days of sailing transit required for the sighting and circumnavigation of Nihoa, in collaboration with the research being conducted from the platform of the Searcher. Most likely the time in Papahānaumokuākea will only be 5 days, but we are requesting a weather and safety buffer for our voyaging canoe. We are conservatively including a weather window to assure that we remain compliant with our permit if weather conditions beyond our control cause the need for more transit time.

f. Provide information demonstrating that you are qualified to conduct and complete the activity and mitigate any potential impacts resulting from its conduct.

Nainoa Thompson has extensive experience as a master navigator and teacher of Hawaiian wayfinding techniques. He has been inducted into Pwo (a sacred initiation ritual) as a master navigator, and was the first Native Hawaiian to practice the ancient art of wayfinding in six centuries. He has navigated both Hōkūle'a and Hawai'iiloa (double-hulled voyaging canoes) from Hawai'i to other island nations throughout Polynesia, including the NWHI, without the aid of instruments – all with only positive educational impacts to natural, historic or cultural resources. He successfully led Hikianalia's maiden voyaging to Papahānaumokuākea in September 2013. Also on board will be at least one cultural practitioner trained in Native Hawaiian cultural protocol and several people who have worked within natural and cultural resource preservation and perpetuation in Hawai'i.

g. Provide information demonstrating that you have adequate financial resources available to conduct and complete the activity and mitigate any potential impacts resulting from its conduct. These training trips are an essential part of the Worldwide Voyage and therefore are funded by Polynesian Voyaging Society (PVS), a cultural and education not-for-profit organization, through various grants and public and private contributions. Per our operating budget for 2015, approved by our Board of Directors, we have enough funding for the Mālama Honua voyage through 2015, including the voyage to Papahānaumokuākea and back.

h. Explain how your methods and procedures are appropriate to achieve the proposed activity's goals in relation to their impacts to Monument cultural, natural and historic resources, qualities, and ecological integrity.

The crews of Hōkūle'a and Hikianalia will follow all Monument BMPs, protocols and policies while operating in Papahānaumokuākea.

i. Has your vessel been outfitted with a mobile transceiver unit approved by OLE and complies with the requirements of Presidential Proclamation 8031?

The proposed voyage would comply with the requirements of Presidential Proclamation 8031: Hikianalia will be outfitted with a working NOAA-OLE type-approved VMS for the trip

j. Demonstrate that there are no other factors that would make the issuance of a permit for the activity inappropriate.

There are no other factors which make the issuance of a permit for the proposed activities inappropriate.

#### ADDITIONAL FINDINGS FOR PROPOSED NATIVE HAWAIIAN PRACTICES

k. Explain how the activity is non-commercial and will not involve the sale of any organism or material collected.

The proposed activities will not result in any commercial use of any Monument resource.

l. Explain how the purpose and intent of the activity is appropriate and deemed necessary by traditional standards in the Native Hawaiian culture (pono), and demonstrate an understanding of, and background in, the traditional practice and its associated values and protocols. Perpetuating the practice of traditional Hawaiian wayfinding is an essential component of the living Native Hawaiian culture and values. The route from Kaua'i to Nihoa is an imperative element in ensuring that the art and practice of traditional Hawaiian wayfinding is carried into the future by the younger generations of apprentice navigators and voyaging crewmembers. For both our ancestors and our future generations, we must make sure that our culture continues to thrive and is never allowed to move toward extinction again.

m. Explain how the activity benefits the resources of the Northwestern Hawaiian Islands and the Native Hawaiian community.

Besides perpetuating integral components of Native Hawaiian culture (voyaging and wayfinding), the use of traditional canoes in the Monument offers an opportunity to maintain a level of cultural integrity that is appropriate for spiritual ceremonies in Papahānaumokuākea. Equally, the ability of crewmembers to perform cultural/spiritual protocol and honor their ancestors perpetuates a centuries-old link of Native Hawaiians to their ancestors, their ancestral knowledge and their Kūpuna Islands: the NWHI.

n. Explain how the activity supports or advances the perpetuation of traditional knowledge and ancestral connections of Native Hawaiians to the Northwestern Hawaiian Islands.

As previously stated, Papahānaumokuākea serves a critical role in three pertinent, significant and living, Native Hawaiian traditions: 'ikemaka, voyaging, and wayfinding. The voyaging route between Kaua'i and Nihoa is used today, as it has been for generations, as a major training and testing ground for novice navigators studying modern Hawaiian wayfinding aboard traditional, double-hulled Hawaiian voyaging canoes. The activities proposed in this permit application support the perpetuation of traditional Hawaiian wayfinding and voyaging, as they serve to train apprentice navigators and test their knowledge in an environment that is a close simulation of a long-distance voyage without the added dangers of testing endurance.

o. Will all Monument resources harvested in the Monument be consumed in the Monument? If not, explain why not.

We are requesting the ability to conduct sustenance fishing activities, fishing in accordance with Monument regulations. All such catch will be consumed in Papahānaumokuākea. Any resources harvested for our science projects and the fish survey/collections would be documented appropriately and either consumed or preserved per the regulations, but none will be consumed outside of Papahānaumokuākea.

#### **8. Procedures/Methods:**

The canoe will depart Kaua‘i en-route to Lehua Island, with Nihoa as its final destination. The sail plan will be attached to the Compliance Information Sheet and submitted to the Monument Permit Coordinator. Once at Nihoa, Hikianalia may circumnavigate the island before continuing with cultural protocol and our collaborative research and study with the Searcher permittees. Sustenance fishing will be done in a traditional style by dragging a monofilament handline of about 100 feet behind the canoe with a trolling lure from sun up to sun down depending on if we catch anything or not.

Five science projects will be conducted opportunistically along the sail plan for the WWV; (1) marine acoustics; (2) fish sampling; (3) plankton sampling; (4) marine debris sampling; and (5) water quality sampling. Brief descriptions of the projects and their purposes follow:

(1) Marine Acoustics: To better understand our oceans, a passive marine acoustic recorder will be used to record dolphin, whale, reef, and anthropogenic sounds throughout the worldwide voyage. These sounds can be analyzed to determine amounts and types of biological activity, species diversity, habitat health, and human impacts. We anticipate that whale and dolphin sounds recorded during the WWV will provide information about species distribution and occurrence in rarely studied areas. Comparing open ocean sounds to areas with boat or ship traffic will provide information about the amount and impact of anthropogenic sounds. Recordings will be made available for teachers and students.

(2) Fish Sampling: Subsistence fish caught by fisherman on Hikianalia for meals will be analysed by crew members by taking fin clip, stomach content samples and gonads. Fin clips will be preserved in dimethyl sulfoxide and used for DNA analysis to better understand the genetic makeup of global fish stocks. Stomach contents will be photographed and assist in our understanding of fish and marine food webs and the role humans play. Gonads will be sized and analyzed for a spawning study. We anticipate that the DNA analysis will identify regional stocks of management importance for the practice of trans-Pacific navigation, as well as for local fisheries. The stomach contents results will be compared with similar datasets in the region to reveal trophic linkages among important fishery and non-fishery species, as well as to illuminate the impacts of human debris. Images of stomach contents and DNA results will be made available for teachers and students. The gonads will be bagged, frozen and appropriately stored on the Searcher for studies back in O‘ahu to help learn about maturity size and variabilities therewith across the Hawaiian Islands. (Please see appended protocol and descriptions for methods of Eva Schemmel's proposed gonad study.) We will therefore be using as many pieces

and parts of our permitted fish for various complementary studies, as well as providing Native Hawaiian subsistence (only withing Papahānaumokuākea) -- i.e., sustainable and respectful full use of the permitted fish.

A small sample size of edible fish that have been identified as important throughout communities in Hawai'i will be targeted for collection, preservation, and analysis to test for the presence of ciguatera. Participants would collect tissue samples of at least 100g of a maximum of 20 fish per species. Samples would be preserved appropriately and sent to Florida Gulf Coast University for analysis by Dr. Michael Parsons. Fish would be caught using a three-prong spear (this is independent of the fish surveys conducted by the small group of scientists). Gathering this data would provide a baseline for ciguatera studies conducted within PMNM in the future as well as provide a better understanding of the relative health of the fish within PMNM. When possible, tissue plugs will be collected from fish in a non-lethal manner, so as to minimize the amount of lethal takes of fish in PMNM. Divers conducting collection activities will be lead by a TNC designated leader and exact species of fish will be determined after initial fish surveys are conducted to ensure that fish are abundant and take does not negatively impact fish schools at Nihoa. Once the species of fish is determined for each of the five identified groups of fish, no more than 20 species of fish will be collected per fish group identified (Kole, Uhu, U'u and Nenu) with the exception of Manini, of which 50 fish will be collected. Divers collecting fish will calibrate often to ensure that only the necessary amounts of fish are caught and the species type are consistent. For example, divers will identify which parrotfish to collect prior to commencement of collection activities. During collection, only the identified type of parrotfish will be collected for analysis.

(3) Plankton Sampling: By better understanding meso-zooplankton, the base of the oceanic food web, we may better understand where fish and other resources come from and go to. Plankton and larvae will be collected by towing a small plankton net at low speed behind Hikianalia. Photographs of plankton will be taken and made available for teachers and students. Plankton will also be preserved in dimethyl sulfoxide and transported back to Hawai'i for DNA analysis. The objectives are to investigate the changes in the diversity of the plankton community along the route of PVS's Mālama Honua Worldwide Voyage as well as to educate the public about impacts of plastics, marine debris and climate change on the base of the food web.

(4) Marine debris sampling: Plastics have greatly improved our standard of living; however, they now make up the majority of debris in the ocean surface waters and pose a large threat to marine ecosystems. Micro plastics will be collected by towing a small net behind Hikianalia. Plastic debris will be preserved in dimethyl sulfoxide to better understand what microorganisms are colonizing on plastic fragments and whether or not these organisms have the potential to naturally degrade the plastic.

(5) Water quality sampling: A handheld Hannah YSI water quality meter will be used to record the salinity, temperature, dissolved oxygen, and pH of surface waters that we travel through. These measurements are vital to our understanding of global oceans as the climate changes. Water quality data will be made publically available to students, teachers, and communities following the worldwide voyage.

In addition, a small group of scientists will conduct scientific fish surveys to create a baseline of fish data that can be utilized and compared with future surveys as they occur. The surveys are non-invasive and no fish collections will occur during the fish surveys.

For reporting purposes, please note that the following will be reported upon outside of the Polynesian Voyaging Society:

- \* Eva Schemmel reports on her gonad study (Eva Schemmel lead)
- \* The Nature Conservancy reports on the fish surveys (Russell Amimoto lead)
- \* Dr. Parsons reports on the Ciguatera study (Tia Brown lead)

**NOTE: If land or marine archeological activities are involved, contact the Monument Permit Coordinator at the address on the general application form before proceeding.**

**9a. Collection of specimens - collecting activities (would apply to any activity): organisms or objects (List of species, if applicable, attach additional sheets if necessary):**

Common name:

Hawaiian chub or Pacific chub

Convict tang

Goldring surgeonfish

Spectacled parrotfish or Ember parrotfish

Brick soldierfish or Bigscale soldierfish

Scientific name:

Kyphosus hawaiiensis or Kyphosus sandwicensis

Acanthurus triostegus

Ctenochaetus strigosus

Chlorurus perspicillatus or Scarus rubroviolaceus

Myripristis amaena or Myripristis berndti

Hawaiian name:

Nenuē

Manini

Kole

Uhu 'ahu'ula/uhu uliuli OR uhu palukaluka/uhu 'ele'ele

U'u

# & size of specimens:

20

50

20  
20  
20

**Collection location:**

around Nihoa, divers conducting collection activities will be lead by a TNC designated leader and exact species of fish will be determined after initial fish surveys are conducted to ensure that fish are abundant and take does not negatively impact fish schools at Nihoa. Once the species of fish is determined for each of the five identified groups of fish, no more than 20 species of fish will be collected per fish group identified (Kole, Uhu, U'u and Nenua) with the exception of Manini, of which 50 fish will be collected. Divers collecting fish will calibrate often to ensure that only the necessary amounts of fish are caught and the species type are consistent. For example, divers will identify which parrotfish to collect prior to commencement of collection activities. During collection, only the identified type of parrotfish will be collected for analysis.

☒ Whole Organism ☒ Partial Organism

**9b. What will be done with the specimens after the project has ended?**

All specimen parts will be identified and analyzed. The whole specimen will not be useful once all analysis is complete and pieces will be appropriately excessed and returned to the ocean, if not eaten for Native Hawaiian subsistence purposes, but only within Papahānaumokuakea. When possible, only plugs will be taken.

**9c. Will the organisms be kept alive after collection?** ☐ Yes ☒ No

• General site/location for collections:  
around Nihoa

• Is it an open or closed system? ☐ Open ☐ Closed  
N/A

• Is there an outfall? ☐ Yes ☐ No  
N/A

• Will these organisms be housed with other organisms? If so, what are the other organisms?  
N/A

• Will organisms be released?  
N/A

**10. If applicable, how will the collected samples or specimens be transported out of the Monument?**

Sealed in ziploc bags frozen or appropriately preserved and transported via Searcher to Honolulu and stored at the IRC.

**11. Describe any fixed or semi-permanent structures or installations, or cultural offerings you plan to leave in the Monument:**

Cultural practitioners will only offer culturally and biologically appropriate ho'okupu in the Monument, after consultation with Monument management, such as oli (chant), wai (water) and pule (prayer).

**12. List all specialized gear and materials to be used in the proposed activities:**

Hook and handline for trolling; three pronged spears for collection of samples.

**13. List all Hazardous Materials you propose to take to and use within the Monument:**

N/A

**14. Describe collaborative activities to share samples, cultural research and/or knowledge gained in the Monument:**

PVS, as part of the larger 'Ohana Wa'a (family of voyaging canoes), is creating a long-term voyaging program in collaboration with various state, federal and private entities. This navigational test will be part of the voyaging program in that it will be a high level of voyaging training. Long-term plans include the development of curriculum around such a voyage at the undergraduate level, and much of the cultural and environmental knowledge gleaned from this voyage may be added to the existing Navigating Change program, of which PVS is a founding member. We will work with Monument staff to determine appropriate partnering mechanisms.

Also, since this voyage is part of the larger Mālama Honua Worldwide Voyage, for which PVS has grants and partners to help create curriculum and educational outreach about cultural, environmental and sustainability issues, it is likely that we would try to incorporate this voyage into that messaging, especially as part of a larger message about the interconnectivity and relevance of all we have to learn from and protect throughout the Hawaiian Archipelago.

Finally, because of our collaboration with permittees on board the Searcher, we look forward to enhancing both groups' collective knowledge, engendering optimal knowledge integration, and maximizing experiences. A diverse participant group of scientists, educators, and Native Hawaiian cultural practitioners will create an environment in which different perspectives and a wide array of knowledge and skill sets can be shared and practiced among peers, thus enriching the overall experience for everyone and producing greater respect for various means of learning and knowing information that is beneficial to us all.

**15a. Will you produce any publications, educational materials or other deliverables?**

☒ Yes ☐ No



**15b. Provide a time line for write-up and publication of information or production of materials:**

If we do produce any educational materials based on this voyage, including potential undergraduate and K-12 curriculum, we will share it with the Monument, especially as the development of such material may well be done in collaboration with Monument staff. We do not have a timeline on the production of said curriculum or lesson plans, as they are being developed by our education partners, and we are focusing on the logistics of safety for our canoes and crews during the entirety of the Worldwide Voyage, conducted by two voyaging canoes and an escort boat, of which this voyage into Papahānaumokuākea is only a portion.

We will also be blogging during this voyage, and images and stories will be posted on [www.hokulea.com](http://www.hokulea.com) as well as via social media. Furthermore, we will be sharing the results from PVS's scientific and observational inquiries through our website and related materials, all of which will be accessible to the public, thereby helping to enhance the concept of providing a window to Papahānaumokuākea for members of the public not permitted to experience this significant place on their own.

**16. If applicable, list all Applicant's publications directly related to the proposed project:** Please visit our website -- [www.hokulea.com](http://www.hokulea.com) -- for relevant photos, blogs and video from our September 2013 voyage on Hikianalia to Papahānaumokuākea. All of these images were shared with the management of Papahānaumokuākea in 2013.

With knowledge of the penalties for false or incomplete statements, as provided by 18 U.S.C. 1001, and for perjury, as provided by 18 U.S.C. 1621, I hereby certify to the best of my abilities under penalty of perjury of that the information I have provided on this application form is true and correct. I agree that the Co-Trustees may post this application in its entirety on the Internet. I understand that the Co-Trustees will consider deleting all information that I have identified as "confidential" prior to posting the application.

---

Signature

Date

**SEND ONE SIGNED APPLICATION VIA MAIL TO THE MONUMENT OFFICE BELOW:**

NOAA/Inouye Regional Center  
NOS/ONMS/PMNM/Attn: Permit Coordinator  
1845 Wasp Blvd, Building 176  
Honolulu, HI 96818


FAX: (808) 455-3093

**DID YOU INCLUDE THESE?**

- ☐ Applicant CV/Resume/Biography
- ☒ Intended field Principal Investigator CV/Resume/Biography
- ☒ Electronic and Hard Copy of Application with Signature
- ☐ Statement of information you wish to be kept confidential
- ☐ Material Safety Data Sheets for Hazardous Materials

## Understanding Variability in Size at Maturity Across Hawai'i

Eva Schemmel  
University of Hawaii, Manoa  
Fisheries Ecology Research Lab



### Project Need

Through close collaborations with local communities (Kīholo, Kailapa, Kaupulehu, Polanui, Maunalua, Hanalei, and Ha'ena) we are working to understand the variability in our marine resources. It is well understood by fishermen that fish behaviors and biology change depending on the location and island. However, the size that fish reach maturity, which informs the size of harvest, and the spawning seasons of harvested reef fish are largely unknown. The program spawning seasons was recreated with the help of Hawaiian communities to better understand the size of maturity and spawning seasons of harvested fish at the community scale to help inform local fishing practices and support community based management, and subsistence fishing. The program has focused on documenting the variability in size at maturity of manini across four locations to highlight the variability in fish biology accross locations. Over the last two years the program has found that manini size at maturity ranges from 12.7 to 16.4 cm. This size range is very large for such a small fish and is important information the state to recognize when attempting to set size limits. We are now trying to understand what causes this variability in the size at maturity. Some of the factors that are known to influence the size in maturity are temperature (latitude affects) and fishing pressure. We are requesting 50 manini gonad samples from your upcoming trip to Nihoa to help determine if size at maturity differences found in manini are due to latitudinal affects or fishing affects. Becasue Nihoa has limited fishing it will provide insight into this question. It is important to note that we are focusing on manini because our preVIOUS data for manini is robust and allows us to address questions on life history variability accross the Hawaiian Islands. However, we are also very intersted in all fish species and gonad samples collected. Additional outcomes of this program are to build a database of fish biology and life history to support sustainable fishing practices and inform research and management in Hawai'i. We have information on over 50 species of reef fish and will incorporate infomration from all species collected to build on this information and knowledge.

## Methods

### *Gonad Sample Collection*

The date, location, species, fork length (tip of nose to middle of tail), and weight are recorded for each fish. The gonad is removed and weighed (if scale is available) and put into a labeled plastic bag and frozen until transfer to UH Manoa.

After Transferred to UH Manoa:

### *Tissue Processing*

Gonad tissues will be preserved in buffered formaldehyde for a minimum of three days, dehydrated in graded ethanol series and embedded in glycol methacrylate (JB-4 Embedding Kit, Electron Microscopy Science). Embedded gonads will be sectioned at 2-7µm using a rotary microtome. Sections will be fixed and stained with toluidine blue or hematoxylin and eosin.

### *Size at Maturity Assessment*

Gonads will be classified based on a standard histological assessment protocols (Table 1). Females that have vitellogenic or hydrated oocytes will be considered mature. Additionally, females that have atresic oocytes will be categorized as mature, as atresic oocytes are indicators of past spawning events. Males will be classified as mature by the presence of spermatozoa. Size at sexual maturity ( $L_{50}$ ) will be reported as the size at which a regression (3-parameter, sigmoidal) of percent mature individuals in each 1 cm size class versus fork length indicates 50% of individuals are mature.

The proportion of mature females at each size class is a function where

$$P = \frac{1}{1 + e^{(-a(L-L_{50}))}}$$

$P$  = proportion mature females at length  $L$

$a$  = slope of the curve

$L_{50}$  = the length at 50% sexual maturity

Table 1. Histological classification of maturity and oocyte development.

Reproductive State	Gonad Stage	Diagnostics
Undeveloped	Chromatin nucleolar	Large nucleus (germinal vesicle) surrounded by a thin layer of cytoplasm. Stains darkly and uniformly with Toluidine Blue.
Undeveloped	Perinucleolar	The germinal vesicle increases in size and nucleoli appear at its periphery. The cytoplasm stains uniformly with Toluidine Blue.
Developing	Cortical alveoli	Appearance of cortical alveoli (yolk vesicles) in the cytoplasm and formation of the vitelline membrane.
<b>Mature-Spawning Capable</b>	Vitellogenic	Appearance of yolk proteins. The oocyte dramatically increases in size.
<b>Mature-Spawning Capable</b>	Hydrated 1	Beginning of hydration (coalescence of yolk granules and migration and dissolution of the nucleus). Oocyte shape round.
<b>Mature-Spawning Capable</b>	Hydrated 2	Oocyte fully hydrated. Oocyte shape irregular.
<b>Mature-Spent (Regressing)</b>	Atresic	Presence of retained oocytes post spawning. Atresic oocytes lose their spherical appearance and the membrane breaks down. Post ovulatory follicles (POFs) present.
<b>Mature-Regenerating</b>	Chromatic nucleolar, Perinucleolar, Cortical alveoli	Oocytes in various stages. No vitellogenic oocytes present. The ovary wall is thick and the ovary may contain unabsorbed material from past spawning events.

### Sample Size Justification

The minimum sample size for determining size at maturity is 50 individuals. This allows for a determination of the size at maturity for females and males, assuming an equal sex ratio, resulting in approximately 25 individuals of each gender. This allows the standard deviation (the range of possible values) at these samples sizes with an error in the estimate of size at maturity around 2 cm. The range allows us to determine differences between size at maturity between different sampling locations across the Hawaiian Islands. Our sampling location of West Maui illustrates the error range in the size at maturity estimates for manini (see below). The sample size was 41 individuals (26 female and 15 male) and the error range for females was 2.6 cm and 4.7 cm for males.

The recommended fish size range for determining the size at maturity is from 12cm to 20cm. To facilitate the estimation and accuracy, it is best to collect manini in equal numbers across this range. For example collecting 6 individuals of each size (12cm, 13cm, 14cm, 15cm,...), allows for 3 individuals of each gender on average for each size class for a sample size of 50 individuals.

Table 2. Manini size at maturity and size distributions (measured by Fork Length (FL)) by location for the spawning seasons program. Gonad samples were collected by participating fishermen from 2013-2014.

Location	Gender	L <sub>50</sub> (cm)	Min (cm)	Max (cm)	Median		Mean	n
					(cm)	(cm)		
West Hawaii	F	15.6	9.2	23.2	16.9	17.1	219	
	M	15.8	12.5	22.0	17.3	17.1	79	
Maunaloa	F	12.7	9.5	22.2	16.5	16.6	230	
	M	12.2	10.0	21.5	16.1	16.0	297	
West Maui	F	16.4	12.2	23.0	17.1	17.0	26	
	M	16.6	13.5	23.0	16.2	16.8	15	
Hanalei	F	13.2	10.0	20.5	16.5	16.3	39	
	M	14.1	12.3	20.0	16.0	16.1	100	

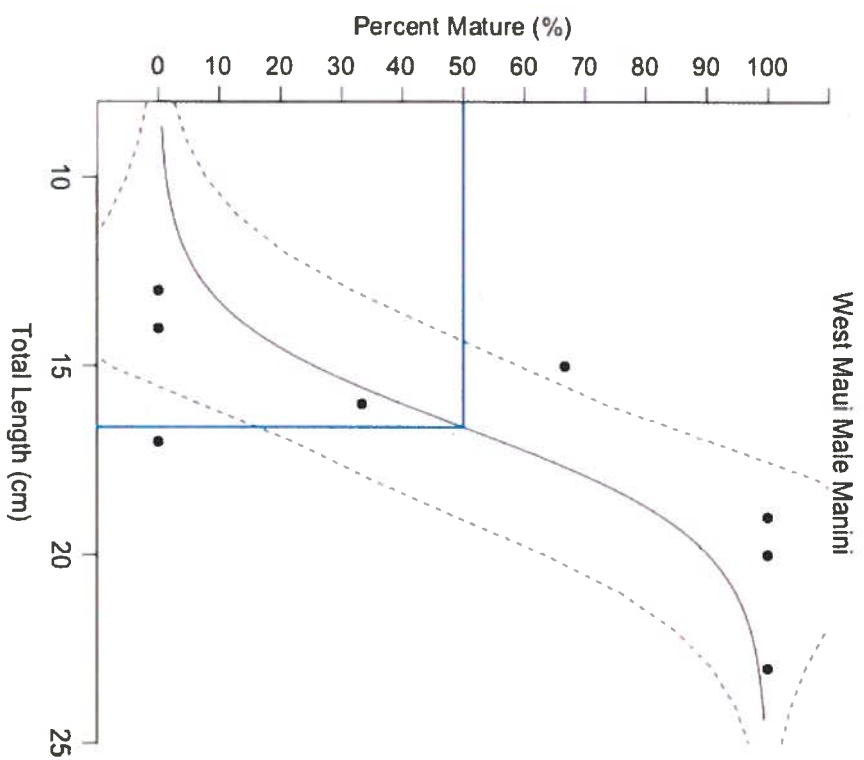
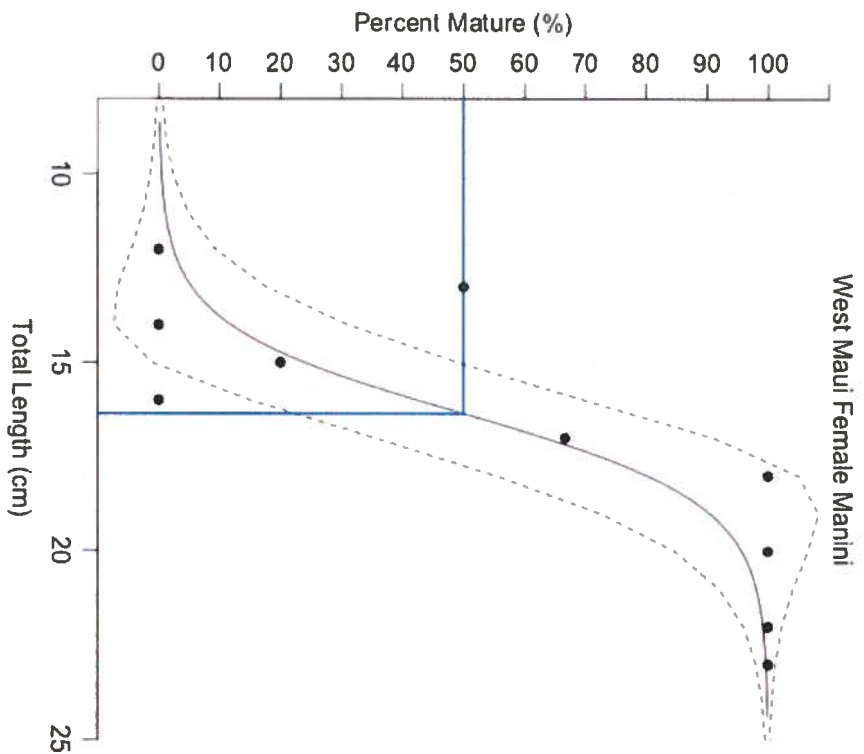


Figure 1. Size of female (sample size = 26) and male manini (sample size = 15) from West Maui. Blue lines indicate the size of maturity, the black line in the percentage of manini at each size that are mature, and the dashed lines indicate the standard deviation (error range) in the estimated size at maturity. The error range decreases with increasing sample sizes. This figure shows the error range from the minimum needed sample size to determine size at maturity (40 individuals). Female manini size at maturity is estimated at 16.4 cm with a standard deviation of 15.6cm-17.6cm (2.6 cm error range) and male manini size at maturity is estimated at 16.6cm with a standard deviation of 13.8cm-18.5cm (4.7cm).



## Gonad Collection Protocol

Eva Schemmel  
UH Manoa  


1. Collect a range of fish sizes to test for size at maturity
  - For manini try to get fish from size 10 cm to 18
2. Record: Date, Location, Species, Fork Length (tip of nose to middle of tail), Weight (if have scale)
3. Remove gonad and weight it if you have a scale
4. Preserve gonad options:
  - Put gonad into labeled (sample number) plastic bag and freeze
  - Or put gonad into a labeled cassette (Eva will provide) and put into a container filled with 10% buffered formaldehyde. \*\*Do all of the work with this chemical outside and use gloves.
5. Contact UH to pick up the samples or pay for aircargo

After Transferred to UH Manoa:

*Tissue Processing*

Gonad tissues will be preserved in buffered formaldehyde for a minimum of three days, dehydrated in graded ethanol series and embedded in glycol methacrylate (JB-4 Embedding Kit, Electron Microscopy Science). Embedded gonads will be sectioned at 2-7µm using a rotary microtome. Sections will be fixed and stained with toluidine blue or hematoxylin and eosin.

*Size at Maturity Assessment*

Gonads will be classified based on a schema modified from Selman and Wallace (1989). Females that have vitellogenic or hydrated oocytes will be considered mature. Additionally, females that have atresic oocytes will be categorized as mature, as atresic oocytes are indicators of past spawning events. Males will be classified at mature by the presence of spermatozoa. Size at sexual maturity ( $L_{50}$ ) will be reported as the size at which a regression (3-parameter, sigmoidal) of percent mature individuals in each 2 cm size class versus fork length indicates 50% of individuals are mature.

The proportion of mature females at each size class is a function (Lowerre-Barbieri, Henderson et al. 2009) where

$$P = \frac{1}{1 + e^{(-a(L-L_{50})}}$$

$P$  = proportion mature females at length  $L$

$a$  = slope of the curve

$L_{50}$  = the length at 50% sexual maturity

Table 1. Gonad classification schema (Selman and Wallace 1989).

Reproductive State	Gonad Stage	Diagnostics
Undeveloped	Chromatin nucleolar	Large nucleus (germinal vesicle) surrounded by a thin layer of cytoplasm. Stains darkly and uniformly with Toluidine Blue.
Undeveloped	Perinucleolar	The germinal vesicle increases in size and nucleoli appear at its periphery. The cytoplasm stains uniformly with Toluidine Blue.
Developing	Cortical alveoli	Appearance of cortical alveoli (yolk vesicles) in the cytoplasm and formation of the vitelline membrane.
Spawning Capable	Vitellogenic	Appearance of yolk proteins. The oocyte dramatically increases in size.
Spawning Capable	Hydrated 1	Beginning of hydration (coalescence of yolk granules and migration and dissolution of

		the nucleus). Oocyte shape round.
Spawning Capable	Hydrated 2	Oocyte fully hydrated. Oocyte shape irregular.
Spent (Regressing)	Atresic	Presence of retained oocytes post spawning. Atresic oocytes lose their spherical appearance and the membrane breaks down. Post ovulatory follicles (POFs) present.
Regenerating	Chromatic nucleolar, Perinucleolar, Cortical alveoli	Oocytes in various stages. No vitellogenic oocytes present. The ovary wall is thick and the ovary may contain unabsorbed material from past spawning events.



## **Papahānaumokuākea Marine National Monument Compliance Information Sheet**

**1. Updated list of personnel to be covered by permit. List all personnel names and their roles here (e.g. John Doe, Diver; Jane Doe, Field Technician, Jerry Doe, Medical Assistant):**

- 1) Nainoa Thompson – pwo navigator – captain
- 2) Russell Amimoto – watch captain
- 3) Lehua Kamalu – apprentice navigator
- 4) Brad Wong – watch captain
- 5) Nā‘ālehua -- ‘Ōiwi TV, crew
- 6) Jenna Ishii – apprentice navigator
- 7) Heidi Guth – quartermaster, logistics
- 8) Stephanie Fitzgerald – crew
- 9) Dennis Chun – watch captain
- 10) John Kruse – carpenter
- 11) Keala Kimura – fisherman
- 12) Gary Yuen – cook
- 13) Moani Heimuli – crew
- 14) Kaleo Wong – apprentice navigator

**2. Specific Site Location(s): (Attach copies of specific collection locations):** Sailing around Nihoa, with water access.

**3. Other permits (list and attach documentation of all other related Federal or State permits):** None

**3a. For each of the permits listed, identify any permit violations or any permit that was suspended, amended, modified or revoked for cause. Explain the circumstances surrounding the violation or permit suspension, amendment, modification or revocation.** N/A

**4. Funding sources (Attach copies of your budget, specific to proposed activities under this permit and include funding sources. See instructions for more information):** Funding for the overall WWV is provided by federal and state grants, as well as from individual and corporate monetary and in-kind donations. Appended, please find our budget for this particular leg of the WWV, which is sponsored by the Office of Hawaiian Affairs.

**5. Time frame:**

Activity start: July 1, 2015 at the earliest (weather window opens)

Activity completion: July 19, 2015 (weather window closes)

Dates actively inside the Monument:

Depends on weather window, but would be for 3 days at most between July 1 and July 19, 2015

Describe any limiting factors in declaring specific dates of the proposed activity at the time of application: Weather – we will be sailing a traditional voyaging canoe into Papahānaumokuākea, will not do so unless weather dictates safe passage.

Personnel schedule in the Monument: Same as crew list. Personnel will all be volunteer PVS crew members on board Hikianalia, entering and leaving Papahānaumokuākea with Hikianalia.

**6. Indicate (with attached documentation) what insurance policies, bonding coverage, and/or financial resources are in place to pay for or reimburse the Monument trustees for the necessary search and rescue, evacuation, and/or removal of any or all persons covered by the permit from the Monument:** All crew members will have DAN insurance as a requirement (which includes medical evacuation coverage), and the PVS office will have records of their individual health insurance on file. Hikianalia has Protection and Indemnity insurance. Please see attached documentation.

**7. Check the appropriate box to indicate how personnel will enter the Monument:**

- ☒ Vessel  
☐ Aircraft

Provide Vessel and Aircraft information: Hikianalia, registered in the Cook Islands, owned by PVS, a 501(c)(3) educational/cultural Hawai'i non-profit.

**8. The certifications/inspections (below) must be completed prior to departure for vessels (and associated tenders) entering the Monument. Fill in scheduled date (attach documentation):**

- ☐ Rodent free, Date: TBD
- ☐ Tender vessel, Date: N/A
- ☐ Ballast water, Date: N/A
- ☐ Gear/equipment, Date: TBD
- ☐ Hull inspection, Date: TBD

**9. Vessel information (NOTE: if you are traveling aboard a National Oceanic and Atmospheric Administration vessel, skip this question):**

Vessel name: Hikianalia

Vessel owner: Polynesian Voyaging Society

Captain's name: Nainoa Thompson

IMO#:N/A

Vessel ID#:1681

Flag: Cook Islands

Vessel type: Traditional – Voyaging Canoe

Call sign: E5U2592

Embarkation port: Marine Education and Training Center, Sand Island, O‘ahu

Last port vessel will have been at prior to this embarkation: Honolulu, O‘ahu

Length: 22 meters

Gross tonnage: 30

Total ballast water capacity volume (m3): N/A

Total number of ballast water tanks on ship: N/A

Total fuel capacity: N/A

Total number of fuel tanks on ship: N/A

Marine Sanitation Device: yes

Type: 3

Explain in detail how you will comply with the regulations regarding discharge in the Monument. Describe in detail. If applicable, attach schematics of the vessel's discharge and treatment systems: Hikianalia has a closed holding tank for our black water, none of which will ever be discharged in Papahānaumokuākea.

Other fuel/hazardous materials to be carried on board and amounts: Two, 5-gallon propane tanks for cooking purposes only. And, at most, 13 gallons of diesel for emergency generator.

Provide proof of a National Oceanic and Atmospheric Administration (NOAA) Office of Law Enforcement-approved Vessel Monitoring System (VMS). Provide the name and contact information of the contractor responsible for installing the VMS system. Also describe VMS unit name and type: Faria Watchdog 750

VMS Email:

Inmarsat ID#:

\* Individuals **MUST ENSURE** that a type-approved VMS unit is installed and that its automatic position reports are being properly received by the NOAA OLE system prior to the issuance of a permit. To make sure your VMS is properly configured for the NOAA OLE system, please contact NOAA OLE at (808) 203-2503 or (808) 203-2500.

\* **PERMITS WILL NOT BE ISSUED TO INDIVIDUALS ENTERING THE MONUMENT VIA VESSEL UNTIL NOAA OLE HAS CONTACTED THE MONUMENT PERMIT COORDINATOR WITH A 'POSITIVE CHECK' READING.**

**10. Tender information:**

On what workboats (tenders) will personnel, gear and materials be transported within the Monument? List the number of tenders/skiffs aboard and specific types of motors: N/A



### **Additional Information for Land Based Operations**

**11. Proposed movement of personnel, gear, materials, and, if applicable, samples:**  
N/A

**12. Room and board requirements on island: N/A**

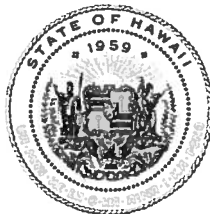
**13. Work space needs: N/A**

**DID YOU INCLUDE THESE?**

- ☐ Map(s) or GPS point(s) of Project Location(s), if applicable
- ☒ Funding Proposal(s)
- ☐ Funding and Award Documentation, if already received
- ☒ Documentation of Insurance, if already received
- ☐ Documentation of Inspections
- ☐ Documentation of all required Federal and State Permits or applications for permits



DAVID Y. IGE  
GOVERNOR OF HAWAII



**STATE OF HAWAII  
DEPARTMENT OF LAND AND NATURAL RESOURCES**

POST OFFICE BOX 621  
HONOLULU, HAWAII 96809

June 12, 2015

SUZANNE CASE  
CHAIRPERSON  
BOARD OF LAND AND NATURAL RESOURCES  
COMMISSION ON WATER RESOURCE MANAGEMENT

KEKOA KALUHIWA  
FIRST DEPUTY

W. ROY HARDY  
DEPUTY DIRECTOR - WATER

AQUATIC RESOURCES  
BOATING AND OCEAN RECREATION  
BUREAU OF CONVEYANCES  
COMMISSION ON WATER RESOURCE MANAGEMENT  
CONSERVATION AND COASTAL LANDS  
CONSERVATION AND RESOURCES ENFORCEMENT  
ENGINEERING  
FORESTRY AND WILDLIFE  
HISTORIC PRESERVATION  
KAHOOLAWE ISLAND RESERVE COMMISSION  
LAND  
STATE PARKS

TO: Division of Aquatic Resources File

THROUGH: Suzanne Case, Chairperson

FROM: Maria Carnevale  
Papahānaumokuākea Marine National Monument

SUBJECT:

DECLARATION OF EXEMPTION FROM THE PREPARATION OF AN ENVIRONMENTAL ASSESSMENT  
UNDER THE AUTHORITY OF CHAPTER 343, HRS AND CHAPTER 11-200 HAR, FOR  
PAPAHĀNAUMOKUĀKEA MARINE NATIONAL MONUMENT NATIVE HAWAIIAN PRACTICES PERMIT  
TO MR. NAINOA THOMPSON, POLYNESIAN VOYAGING SOCIETY, FOR ACCESS TO STATE WATERS  
TO CONDUCT TRAINING SAILS FOR APPRENTICE NAVIGATORS USING NON-INSTRUMENTAL  
NAVIGATION ACTIVITIES UNDER PERMIT PMNM-2015-021

The following permitted activities are found to be exempted from preparation of an environmental assessment under the authority of Chapter 343, HRS and Chapter 11-200, HAR:

Project Title:

Papahānaumokuākea Marine National Monument Native Hawaiian Practices Permit to Mr. Nainoa Thompson, Polynesian Voyaging Society, for Access to State Waters to Conduct Training Sails for Apprentice Navigators Using Non-Instrumental Navigation Activities

Permit Number: PMNM-2015-021

Project Description:

The Native Hawaiian Practices permit application, as described below, would allow entry and activities to occur in Papahānaumokuākea Marine National Monument, including the NWHI State waters from July 1, 2015 to June 30, 2016.

The Applicant proposes to conduct training sails for apprentice navigators by sailing to Nihoa Island from the Main Hawaiian Islands using non-instrumental navigation. This activity would strengthen cultural connections to the Northwestern Hawaiian Islands and perpetuate the traditional Native Hawaiian skill of wayfinding. The training sails would be aboard the HIKIANALIA, a 72-foot Native Hawaiian voyaging canoe. HIKIANALIA would be anchored on sandy substrate offshore.

ITEM F-3c

The Applicant proposes that up to sixteen (16) crew members would enter the Monument.

This voyage would be in coordination and collaboration with marine research being conducted on board the SEARCHER. The purpose of this multidisciplinary expedition is to leverage expertise and resources from scientists, marine managers, educators, and cultural practitioners to further integrate western science and Native Hawaiian ways of knowing to (1) share knowledge, (2) broaden the ways in which the expedition team assesses their surrounding environment; and (3) utilize knowledge and skills gained on the expedition; and (4) empower the team to educate their communities about approaching science and conservation in a more holistic manner.

In addition to traditional wayfinding, crew will participate in intertidal monitoring surveys, fish surveys, and collection of fish for testing presence of ciguatera. Crew will also analyze the stomach contents and collect and analyze gonads and fin clips for genetic and reproductive analyses. (These activities will be done in collaboration with Dr. Chris Bird and Dr. Robert Toonen (proposed permit PMNM-2015-026) and Shauna Kēhaunani Springer (proposed permit PMNM-2015-017).

Five main projects will be conducted during the collaborative expedition:

- (1) Maritime Education: Voyaging and traditional navigation training
- (2) Science activities onboard HIKIANALIA (marine acoustics, fish samples, plankton sampling, marine debris, water quality);
- (3) Rocky shoreline (intertidal) monitoring;
- (4) Nearshore reef fish surveys, including gonad studies; and
- (5) Ciguatera testing on select reef fishes to ensure future subsistence gathering

Furthermore, subsistence gathering for algae, limited reef fishes, and invertebrates, and access to intertidal and land areas will be done for Native Hawaiian protocol purposes. These activities will complement the research of the expedition team that will be collecting a comparable number of samples for the purposes of scientific investigation. Fishing activities in federal and state waters will be done by trolling a lure on a single monofilament handline for 100 feet. All fish caught would be consumed within the Monument. The line would be monitored at all times and personnel would abide by Monument Best Management Practices: Seabird Protocols Necessary for Conducting Trolling Research and Monitoring to reduce impacts to seabirds. All fishing gear would be removed from the water if any Hawaiian monk seals or sea turtles are observed. Additionally, the Applicant intends to partake in cultural observations and protocol including the offering of ho'okupu (gifts of water, oli (chants), and pule (prayer)) in order to strengthen cultural connections to the place.

Various activities during this voyage will require specimen collections. Collections include:

The Applicant will collect tissue samples of at least 100g of a maximum of 20 fish per species. Fish will be caught using a three-prong spear. No more than 20 species of fish will be collected per fish group identified (Kole, Uhu, U'u and Nenu) with the exception of Manini, of which 50 fish will be collected. Divers collecting fish will calibrate often to ensure that only the necessary amounts of fish are caught and the species type are consistent.

**Plankton Sampling:** Plankton and larvae will be collected by towing a small plankton net at low speed behind HIKIANALIA. Photographs of plankton will be taken and made available for teachers and students. Plankton will also be preserved in dimethyl sulfoxide and transported back to Hawai‘i for DNA analysis.

**Marine debris sampling:** Micro plastics will be collected by towing a small net behind HIKIANALIA. Plastic debris will be preserved in dimethyl sulfoxide to better understand what microorganisms are colonizing on plastic fragments and whether or not these organisms have the potential to naturally degrade the plastic.

**Water quality sampling:** A handheld Hannah YSI water quality meter will be used to record the salinity, temperature, dissolved oxygen, and pH of surface waters. Water quality data will be made publically available to students, teachers, and communities following the worldwide voyage.

**Fish sampling:** Subsistence fish caught by fisherman on HIKIANALIA for meals will be analysed by crew members by taking fin clip, stomach content samples and gonads. Fin clips will be preserved in dimethyl sulfoxide and used for DNA analysis to better understand the genetic makeup of global fish stocks. Gonads will be sized and analyzed for a spawning study. DNA analysis will identify regional stocks of management importance for the practice of trans-Pacific navigation, as well as for local fisheries. The stomach contents results will be compared with similar datasets in the region to reveal trophic linkages among important fishery and non-fishery species, as well as to illuminate the impacts of human debris. The gonads will be bagged, frozen and appropriately stored on the SEARCHER for studies back in O‘ahu.

The proposed activities are in direct support of the Monument Management Plan’s (MMP) priority management needs through 3.1.2 – Native Hawaiian Culture and History Action Plan (Strategy NHCH-2: Conduct, support, and facilitate Native Hawaiian cultural access and research of the NWHI over the life of the plan). NHCH-2.6 states “[s]uch access needs may include, but not be limited to...regular access for Polynesian voyaging canoes for wayfinding, navigational, and cultural protocol training”. Activities such as those to be carried out by the permittee, are also addressed in the Monument Management Plan Environmental Assessment (December 2008) which resulted in a FONSI (Finding of No Significant Impact).

#### Consulted Parties:

The permit application was sent out for review and comment to the following scientific and cultural entities: Hawai‘i Division of Aquatic Resources, Hawai‘i Division of Forestry and Wildlife, Papahānaumokuākea Marine National Monument (NOAA/NOS), NOAA Pacific Islands Regional Office (NOAA-PIRO), United States Fish and Wildlife Service Hawaiian and Pacific Islands National Wildlife Refuge Complex Office, and the Office of Hawaiian Affairs (OHA). In addition, the permit application has been posted on the Monument Web site since April 15, 2015, giving the public an opportunity to comment. The application was posted within 40 days of its receipt, in accordance with the Monument’s Public Notification Policy.

#### Exemption Determination:

After reviewing HAR § 11-200-(8), including the criteria used to determine significance under HAR § 11-200-12, DLNR has concluded that the activities under this permit would have minimal or no significant effect on the environment and that issuance of the permit is

categorically exempt from the requirement to prepare an environmental assessment based on the following analysis:

1. All activities associated with this permit, including the activities involved with training apprentice navigators using non-instrumental navigation, have been evaluated as a single action. As a preliminary matter, multiple or phased actions, such as when a group of actions are part of a larger undertaking, or when an individual project is precedent to or represents a commitment to a larger project, must be grouped together and evaluated as a single action. HAR § 11-200-7. This permit does not involve an activity that is precedent to a later activity.

2. The Exemption Class for Scientific Research with no Serious or Major Environmental Disturbance Appears to Apply. Chapter 343, HRS, and section 11-200-8, HAR, provide for a list of classes of actions exempt from environmental assessment requirements. HAR §11-200-8.A.5. exempts the class of actions which involve “basic data collection, research, experimental management, and resource evaluation activities, which do not result in a serious or major disturbance to an environmental resource.” Additionally, Exemption Class #5, Exempt Item #2 includes game and non-game wildlife surveys, photographing, recording, sampling, and collection in the field. This exemption class has been interpreted to include various modes of transportation to reach field areas necessary to carry out such activities. DEPARTMENT OF LAND & NATURAL RESOURCES, EXEMPTION LIST FOR THE DIVISION OF FORESTRY AND WILDLIFE (June 12, 2008).

The proposed training sails for apprentice navigators using non-instrumental navigation activities here appear to fall squarely under the exemption class identified under HAR § 11-200-8.A.5., and are succinctly described under the former Fish and Game Division exemption list published in 1976. As discussed below, no significant disturbance to any environmental resource is anticipated in the training of apprentice navigators in both the water and on land activities. Thus, so long as the below considerations are met, an exemption class should include the action now contemplated.

3. Cumulative Impacts of Actions in the Same Place and Impacts with Respect to the Potentially Particularly Sensitive Environment Will Not be Significant. Even where a categorical exemption appears to include a proposed action, the action cannot be declared exempt if “the cumulative impact of planned successive actions in the same place, over time, is significant, or when an action that is normally insignificant in its impact on the environment may be significant in a particularly sensitive environment.” HAR § 11-200-8.B. To gauge whether a significant impact or effect is probable, an exempting agency must consider every phase of a proposed action, any expected primary and secondary consequences, the long-term and short-term effects of the action, the overall and cumulative effect of the action, and the sum effects of an action on the quality of the environment. HAR § 11-200-12. Examples of actions which commonly have a significant effect on the environment are listed under HAR § 11-200-12.

Training activities for apprentice navigators would involve accessing Niihau Island for one day, limited to ten (10) hours, while following the Monument Best Management Practices for Niihau Island. This is expected to have minimal impact to the island.

The activities would be conducted from the HIKIANALIA, which would have to meet vessel compliance requirements (hull inspection, sanitation (rat) inspection, and installation of a vessel monitoring system (VMS)) prior to entrance into the Monument. Access to land will be conducted from a small boat deployed from the HIKIANALIA.

Other proposed activities occurring in PMNM around the same time as the Applicant would be permitted under Drs. Robert Toonen and Christopher Bird (PMNM-2015-026) and Kēhaunani Springer (PMNM-2015-017) aboard the SEARCHER. These applicants are permitted to collect and harvest intertidal organisms at Nīhoa and Mokumanamana for a biodiversity assessment and cultural monitoring, respectively. The Applicant intends to meet these two applicants at Nīhoa to take part in the interdisciplinary research. Dr. Kekuewa Kikiloī (PMNM-2015-014) aboard the MAKANI‘OLU sailing vessel will be conducting archaeological research activities at Nīhoa and Mokumanamana. Activities are expected to occur between June and July 2015. No significant cumulative impact is expected, though, because Monument Best Management Practices (BMPs) will be followed by all parties. See Tables 1-6 for other activities occurring in the Monument during Summer 2015.

Table 1: Concurrent projects about NOAA ship SETTE.

Permit	Purpose and scope	Location
PMNM-2015-004 Koes SETTE (approved)	This permit allows the NOAA SETTE entry into the Monument. Personnel aboard the vessel would be permitted under separate permits	All locations
PMNM-2015-001 Co-Trustee (approved)	This permit allows monk seal field camp operations	French Frigate Shoals, Lisianski Island, Pearl and Hermes Atoll, Midway Atoll, Kure Atoll

Table 2: Concurrent projects aboard NOAA Ship OKEANOS.

Permit	Purpose and scope	Location
PMNM-2015-025 Wetzler OKEANOS	The permit would allow NOAA Ship OKEANOS into the Monument to support separately permitted activities	All locations
PMNM-2015-018 Elliott (proposed)	The proposed action would conduct bathymetric mapping activities to characterize deepwater areas and coral communities	Nīhoa, Mokumanamana, French Frigate Shoals, Gardner Pinnacles, Maro Reef, Laysan, Lisianski and Neva Shoal, Pearl and Hermes

Table 3. Concurrent project about the MAKANI‘OLU.

PMNM-2015-014 Kikiloī (proposed)	This proposed action would conduct archaeological and cultural research activities	Nīhoa, Mokumanamana
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Table 4. Concurrent projects aboard the SEARCHER.

PMNM-2015-017 Springer (proposed)	This proposed action would be to conduct intertidal biodiversity studies using traditional ecological knowledge	Nihoa, Mokumanamana, French Frigate Shoals, Gardner Pinnacles
PMNM-2015-026 Bird-Toonen (proposed)	This proposed action entails conducting intertidal biodiversity activities	Nihoa, Mokumanamana, French Frigate Shoals, Gardner Pinnacles

Table 5: Concurrent projects aboard NOAA Ship HI'IALAKAI.

<b>Permit</b>	<b>Purpose and scope</b>	<b>Location</b>
PMNM-2015-006 Simon HI'IALAKAI (approved)	This permit allows the NOAA Ship HI'IALAKAI entry into the Monument. Personnel aboard the vessel would be permitted under separate permits	All locations
PMNM-2015-001 Co-Trustee (approved)	This permit allows monk seal field camp operations	Kure Atoll, Midway Atoll, French Frigate Shoals
PMNM-2015-009 Parrish-Garrett (proposed)	The proposed action would involve the selective removal of up to 20 Galapagos sharks from French Frigate Shoals to mitigate predation on Hawaiian monk seals	French Frigate Shoals
PMNM-2015-013 Couch (proposed)	This proposed action would be to assess health and community structure of corals on shallow-water reefs	All locations
PMNM-2015-012 Godwin (proposed)	This proposed action would be conduct to Pacific Reef Assessment and Monitoring Program	All locations
PMNM-2015-016 Wall (proposed)	This proposed action would be to document the coral bleaching of shallow-water reefs	All locations
PMNM-2015-015 Gleason (proposed)	This proposed action would conduct maritime heritage monitoring and surveying activities	All locations
PMNM-2015-019 Littnan (proposed)	This proposed action would be to conduct monitors and surveys of various areas using an Unmanned Aerial System (UAS)	Laysan, Lisianski, Pearl and Hermes, Midway Atoll
PMNM-2015-020 Meyer (proposed)	This permit would allow research activities regarding top predator feeding and movement	All locations

The Applicant will be collaborating with two other applicants, Springer (pending permit PMNM-2015-017) and Bird-Toonen (pending permit PMNM-2015-026). They intend to conduct intertidal research activities using both traditional ecological knowledge and western science to enhance the overall understanding of Monument resources. The joint permit review process did not reveal any anticipated indirect or cumulative impacts, nor did it raise any cultural concerns, that would occur as a result of these activities. Overall, significant cumulative impacts are not anticipated as a result of this activity, and numerous safeguards further ensure that the potentially sensitive environment of the project area will not be significantly affected. All activities will be conducted in a manner compatible with the management direction of the Monument



Proclamation in that the activities do not diminish monument resources, qualities, and ecological integrity, or have any indirect, secondary, cultural, or cumulative effects. Since no significant cumulative impacts or significant impacts with respect to any particularly sensitive aspect of the project area are anticipated, the categorical exemptions identified above should remain applicable.

#### 4. Overall Impacts will Probably be Minimal and Insignificant.

Again, any foreseeable impacts from the proposed activity will probably be minimal, and further mitigated by general and specific conditions attached to the permit. Specifically, all activities covered by this permit will be carried out with strict safeguards for the natural, historic, and cultural resources of the Monument as required by Presidential Proclamation 8031, other applicable law and agency policies and standard operating procedures.

Overall, significant cumulative impacts are not anticipated as a result of this activity, and numerous safeguards further ensure that the potentially sensitive environment of the project area will not be significantly affected. All activities will be conducted in a manner compatible with the management direction of the Monument Proclamation in that the activities do not diminish monument resources, qualities, and ecological integrity, or have any indirect, secondary, cultural, or cumulative effects. The joint permit review process did not reveal any anticipated indirect or cumulative impacts, nor did it raise any cultural concerns, that would occur as a result of these activities.

Conclusion. Upon consideration of the permit to be approved by the Board of Land and Natural Resources, the potential effects of the above listed project as provided by Chapter 343, HRS and Chapter 11-200 HAR, have been determined to be of probable minimal or no significant effect on the environment and exempt from the preparation of an environmental assessment.

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Suzanne Case  
Chairperson, Board of Land and Natural Resources

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Date

